Rejection Under 35 U.S.C. 102

Claims 1-6, 9-12, 14-30 and 32-35 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 6,590,996 issued to Reed et al. on July 8, 2003.

The Office Action essentially states that Reed et al. teaches all the limitations of applicant's independent claims. Applicant would like to thank the Examiner for the careful consideration in the Examination of the application and the explanation of the cited prior art. Nevertheless, this ground of rejection is respectfully traversed for the following reasons.

First, enlightened by the sections cited by the Examiner, applicant is essentially starting his argument for patentability from scratch. That being said, it seems best to turn first to independent claim 20, which relates to detecting the watermark, since the Office Action initially cites a section of Reed al. that relates to repeating the bits of the watermark frames for multiple images in the section of the Office Action that is specifically responding to applicant's previous amendment.

Independent claim 20 requires combining extracted initial additional information of like block positions from prescribed frames to determine the final additional information. Thus, what must be combined according to claim 20 is extracted initial additional information, i.e., initially extracted watermark data, from like block positions.

However, what is combined by Reed et al. in the section thereof cited by the Office Action, namely, column 20, lines 2-14, is explained further at column 20, line 15 to column 21, line 41, especially, column 21, lines 35-41, and it is **not** initially extracted additional information. When those sections are all read in their entirety, it becomes clear that Reed et al. combines the image data of multiple images (frames of native image data (932)), which is the entire image combined with the watermark, rather than extracted initial additional data, i.e., **only** watermark data, that is required to be combined by applicant's claim. More specifically, applicant notes that columns 20 and 21 of Reed are directed to Detector Pre-Processing, as indicated at column 20, line 1. In other words, the watermarked image is being prepared for detecting the watermark, but **no** watermark data extraction actually takes place in the cited section.

In fact, actually detecting a raw watermark bit is **not** described in Reed et al. until much later, starting at column 30, line 53, and continuing until column 32, line 22. That section clearly shows that one bit is extracted from each block that might contain a bit, and this processing is done only within a single frame, which may be a preprocessed frame, i.e., a frame that was filtered or otherwise processed, which may include having been combined with another frame. That only data for a single frame is extracted is made especially clear from column 32, lines 1-7 and 15-18, which explains that when the read is invalid, the detection process, if it cannot orient the image to produce a valid read, re-starts the detection process on a new frame, in the case that there actually is more than one frame available with the same watermark data. This implies that even when there are extra frames containing the same watermark data, Reed et al. gives up on all the work that was done on the current frame and starts over with the next, new frame of image data. Never, however, does Reed et al. suggest that initially extracted information of like block positions from different frames be combined, as required by independent claim 20. This appears to be because when a frame contains valid data, that is sufficient for Reed et al., but when the data is considered invalid, such data is deemed to be invalid in toto and unsuitable for any use.

Thus, since Reed et al. at best combines various watermarked images, but never the extracted initial additional information from like block positions for prescribed frames, independent claim 20 is allowable over Reed et al.

Turning next to applicant's independent claims 1, 29, 30, and 39 which relate to embedding the watermark data in a video signal, each of these claims requires that the watermark data be impressed upon each block to contain it by being placed in at least one bit position of an average value of a chrominance portion over the respective blocks. This is **not** taught by Reed et al.

The Office Action cites column 5, lines 48-54 of Reed et al. as showing this element. However, the cited language only shows that the watermark data of Reed et al. may be generally embedded in one or more color components of an image. In other words, Reed et al. teaches that the color component may be changed in a fashion such that it represents the watermark data. But Reed et al. does **not** teach or suggest that the

watermark data is placed in at least one bit position of an average value of a chrominance portion over the respective blocks.

Rather, Reed et al. teaches employing the average color of the block to look up the corresponding color channels in which to embed the watermark. (See Reed et al. column 2, lines 40-52, column 38, lines 10-47.) More specifically, Reed et al. teaches that the encoder combines the image samples in the watermark signal with the corresponding samples in the input image. The result is that some image samples of the input image are adjusted upward, while others are adjusted downward.

However, there is no teaching to manipulate the average of any block in the particular way necessary to place the watermark bit in at least one bit position of the average value of a chrominance portion over a block. While the effect of the modifying of the input image in Reed et al. when it is combined with the watermark signal changes the average value of the block, such a change does not necessarily, and likely does not, place the value of the watermark bit being embedded in that block within at least one bit position of the block. This is because placing the watermark bit within a bit position of the average value of a block means generally, and, as explained in the specification, that once the bit position in the average value is known the value is simply read from that bit position.

Nothing like this is taught in Reed et al., where the detection process is described, for example, at column 12, lines 11-67, which uses estimates of the watermark signal, predictions of the original unwatermarked signal, and the carrier, to develop values for each raw bit. Thus, the modifications of the image to add thereto the watermark data by Reed et al. do not place the actual bit values of the watermark data into at least one selected bit of the average value of the chrominance potion of a block, as required by applicant's independent claims 1, 29, 30, and 39.

Thus, all of applicant's independent claims are allowable over Reed et al.

Since all of the dependent claims that depend from the currently amended independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Reed et al. under 35 U.S.C. 102.

Note that amended claims 36 and 38 are merely former claims 37 and 38, respectively, rewritten in independent form.

Rejection Under 35 U.S.C. 103(a)

Claims 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. in view of United States Patent No. 6,538,599 issued to David on March 25, 2003.

Each of these grounds of rejection applies only to dependent claims, and each is predicated on the validity of the rejection under 35 U.S.C. 102 given Reed et al. Since the rejection under 35 U.S.C. 102 given Reed et al. has been overcome, as described hereinabove, and there is no argument put forth by the Office Action that David supplies that which is missing from Reed et al. to render the independent claims anticipated, and indeed it does not do so, this grounds of rejection cannot be maintained.

Therefore, applicant's claims are allowable over the combination of Reed et al. and David under 35 U.S.C. 103(a).

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Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the **Lucent Technologies Deposit Account No. 12-2325.**

Respectfully,

M. H. Zarrabizadeh

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